



PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements relating to Fire Alarm Devices

I, JAMES STEVENSON, a British subject, of 17, Edge Lane, Chorlton-cum-Hardy, Manchester 21, formerly of 845 Manchester Road, Blackford Brow, Bury, Lancashire, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention is concerned with a portable self-contained fire alarm device and has for its main object to provide a simple, inexpensive and efficient device which may be purchased in pre-assembled form and be placed in a room or other enclosure so as automatically to give an alarm in the event of an undue rise in temperature, the device being adapted also to terminate the alarm automatically should the emergency pass, no manual re-setting or like adjustment being necessary. The improved device remains always "on guard", ready to give an alarm when necessary and to cease the alarm when need for it passes.

It is an object of the invention also to provide a self-contained alarm device which may be placed anywhere in a room or the like without requiring connection to any mains supply or other wiring, which may for example be hung on a wall or stood on a piece of furniture or otherwise placed in the enclosure. The device may in fact be of any ornamental character so as to be unobtrusive and be integrated with the ornamentation of the room without displaying any characteristics identifying it as an alarm device.

A further object of the invention is to provide an alarm device as aforesaid which may be quickly and easily tested at any time to ensure that it is still "on guard" this testing being possible without so much as lifting the alarm from its support.

A device according to this invention comprises the combination in a ventilated holder of a dry-cell battery, a bell or other warning element and a thermostat switch which is

normally open, but is adjusted to close whenever the ambient temperature exceeds a pre-selected figure and to re-open whenever that temperature falls below such figure, all wired together in a circuit such that closing of the said switch completes the circuit to energise the warning element, and the re-opening of the switch de-energises the warning element. Normally there will be a housing or casing containing a withdrawable, renewable dry cell, a warning element such as a bell or buzzer or a lamp (or any combination of these) and the thermostat switch, these elements being wired in series, with the switch contacts normally open and set to close at a pre-determined temperature. The said housing or casing will be provided with openings both to allow the ambient atmosphere to pass through the device and thereby keep the thermostat switch at the room temperature, and also to allow a sufficient emission of sound from the warning element when energised.

The invention may be characterised in that a test switch is provided, wired across the thermostat switch, whereby the device may be checked as to whether or not it is in "on guard" condition. Such switch will be operable from the outside of the container and may be for example of the stop and repeat type requiring double operation, or it may be of a normally-open type requiring to be closed against spring pressure.

In convenient forms of the invention, the housing or casing comprises a back or support which will carry the battery, the thermostat switch and warning element and comprises a removable front or closure. The battery may be held in place by spring holders or gripping means (which may also serve as contacts) so as to be removable merely by being pulled out of its holders and replaced, or it may slide into a sleeve or pocket and have screw-type pole pieces. In either case the said front or cover may have co-operating positioning means to engage the cell resiliently when all

is indicated at 22. The parts will be wired together similarly to those described with reference to Figs. 1—4.

5 This cover 4 is suitably apertured so as to allow the ambient atmosphere to pass through under normal convection influence, thereby maintaining the temperature within the housing substantially the same as that outside the housing.

10 The apertures may take any suitable form and may be separate openings as shown or may be the interstices of a wire mesh grille hole perforations, slots or the like.

15 Figs. 6—8 show some of many possible alternative forms of the invention. In Fig. 6 the bell 23 is arranged above a horizontally-disposed housing 24 for the battery and cut-out switch. Fig. 7 shows the three components mounted on a circular back plate 25 and enclosed by a snap-on dome-shaped cover 26.

20 The alarm device may be incorporated in various articles of ornamental and utilitarian purpose. In Fig. 8 it is shown as carried by a photograph frame. In some other cases it could be embodied in a block, spill-holder, flower vase or the like. Also, instead of being flat-backed it could be of cylindrical spherical, pear-shaped or other symmetrical form for hanging from a chandelier or other overhead support.

25 As only the temperature-responsive parts of the control switch require to be exposed to the temperature conditions being monitored, there may be housed in a separate, ventilated compartment, the rest of the device being enclosed in a dust-proof housing. For example the said parts may be located in a projecting part of the general body of the device say for example a projecting or auxiliary part of an ornamental form of the device. All these forms of the device may be equipped with a test switch as is the case with the example illustrated in Figs. 1—4.

30 In a modification of the invention, not illustrated, of cheaper but less preferred form the housing or enclosure consists of the hollow ventilated front cover only, the three working parts namely dry cell, control switch and warning element being secured to the inner face of such hollow cover.

WHAT I CLAIM IS:—

35 1. A fire-alarm device comprising the combination in ventilated holder of a dry cell battery, a bell or other warning element and a thermostat switch which is normally open but is adjusted to close whenever the ambient temperature exceeds a pre-selected figure and to re-open whenever that temperature falls below such figure, all wired together in a circuit such that closing of the said switch completes the circuit to energise the warning

element and re-opening of the switch de-energises the warning element.

2. A fire-alarm device comprising a housing or casing containing a withdrawable, renewable dry cell battery, a warning element such as a bell or buzzer or a lamp (or any combination of these) and a temperature-responsive make-and-break-switch, these elements being wired in series, with the switch contacts normally open but set to close on the exceeding of a pre-selected temperature, and to re-open on the falling short of that pre-selected temperature.

3. A device according to claim 1 or 2, having a test switch wired across said thermally-responsive switch.

4. A device according to claim 2, or 3 wherein said housing or closure is provided with openings both to allow the ambient atmosphere to pass through the device and thereby keep the thermally-responsive switch at the room temperature and also allow a sufficient emission of sound from the warning element when energised.

5. A device according to claim 2, 3 or 4, wherein the housing or casing comprises a back or support which carries the battery, control switch and warning elements and a removable front or closure and the battery is held in place by spring holders by envelope or gripping means (which may also serve as contacts).

6. A device according to claim 5 when appended to claim 3, wherein the test switch carries a part serving to lock the said front or closure in place on the back or support.

7. A device according to claim 6, wherein said spring holders, envelope, or gripping means also serve as electrical contacts.

8. A device according to any of claims 4—7, wherein the front cover has co-operating positioning means to engage the cell, when all the parts are in position, so that the cell is firmly held and cannot leave its mounting inadvertently.

9. Devices constructed according to any preceding claim, adapted for multiple use so that when connected together by an electric lead, if the thermally-responsive switch in any one of them closes then the warning elements in all of them will respond.

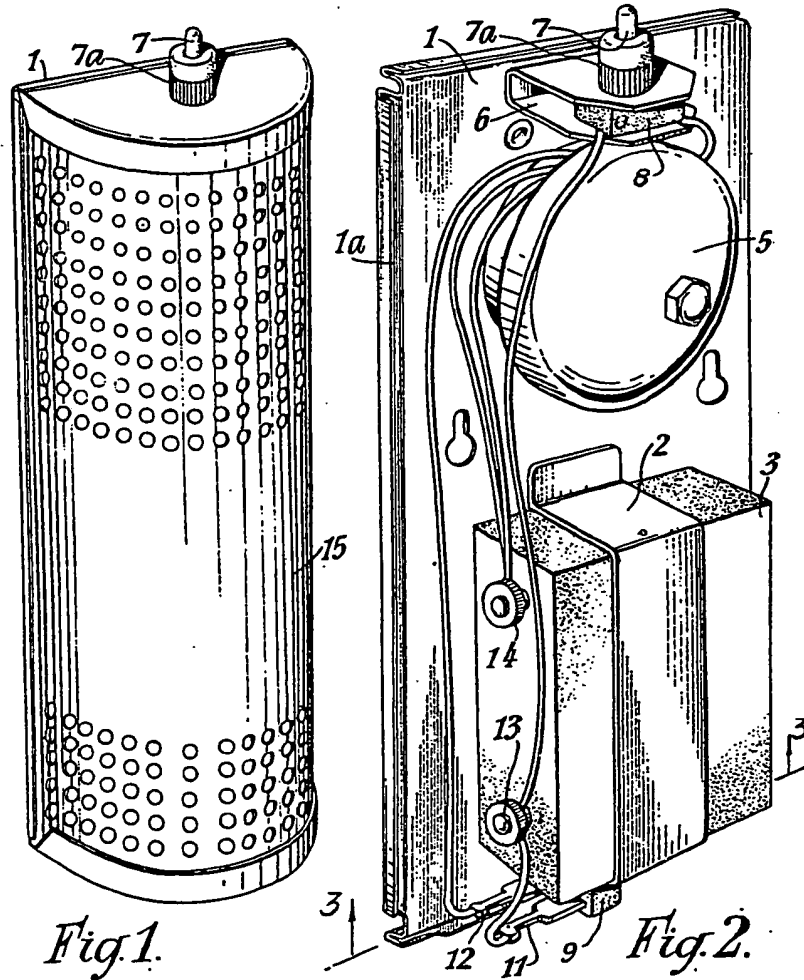
10. A device according to claim 5, or 6 including a back member with integral foot, this member supporting the thermally-responsive switch, the removable cell and the warning device, and including also a cover member with integral top, the cover member being adapted to slide into interlocking engagement with the said back member so as to be retained thereon and the back member being formed or equipped to engage a supporting means.

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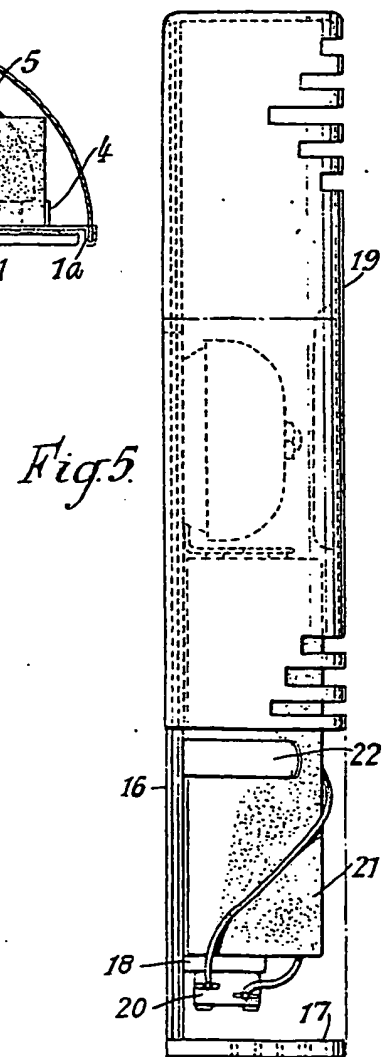
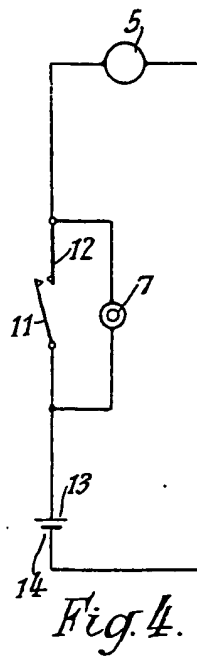
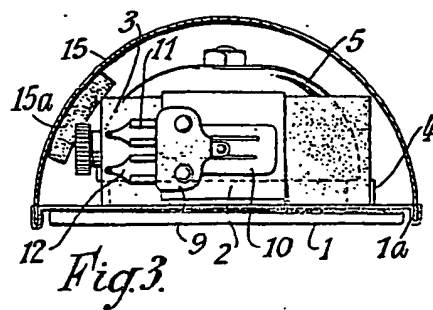
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3 SHEETS

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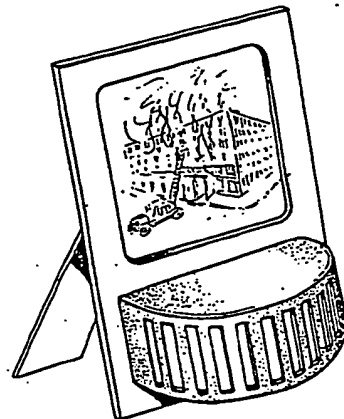
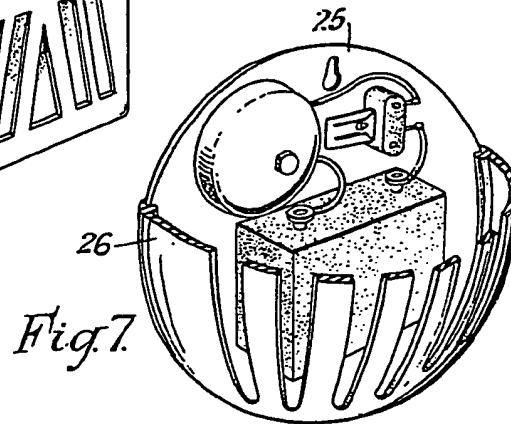
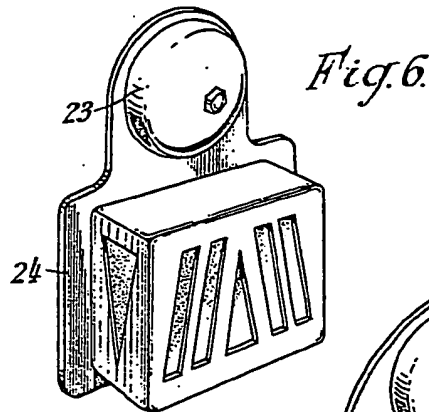
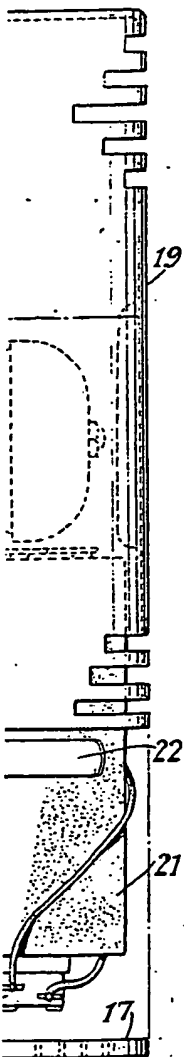
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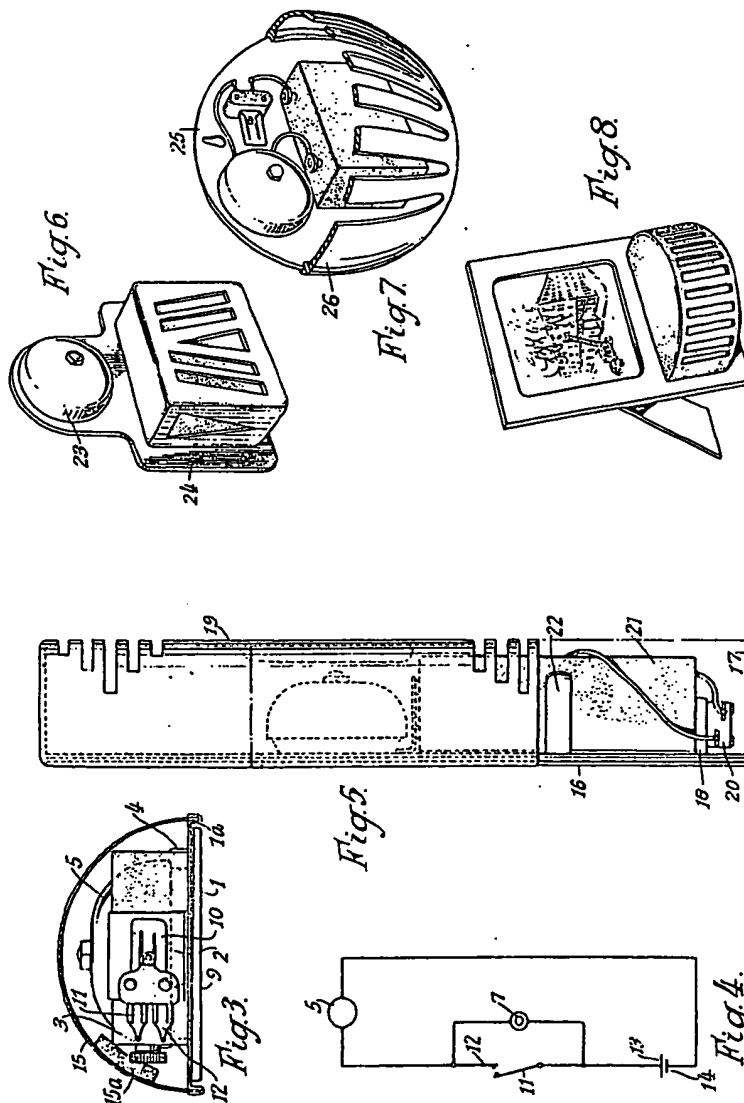
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3 SHEETS

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Sheets 2 & 3



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